

ABSTRACT OF THE DISCLOSURE

A heat pump dehumidification system comprised of one of an air source heat pump system, a water source heat pump system, and a direct expansion heat pump system, with an extra interior air heat exchange means situated between the system's compressor's hot refrigerant gas discharge side and the exterior heat exchange means, for activation and use in conjunction with the system's primary interior air heat exchange means, located between the exterior heat exchange means and the system's compressor's refrigerant gas suction side, when operation in a dehumidification mode is desired absent sensible cooling, and optimum design sizes for both interior air exchange means while the system is operating in one of a dehumidification mode, a cooling mode, and a heating mode.